

Trend Study 5-15-01

Study site name: Red Rock Canyon.

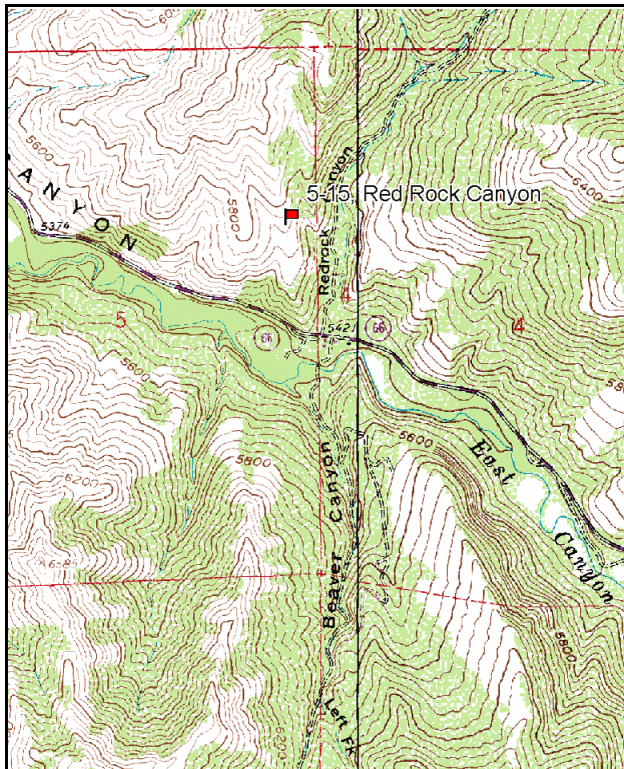
Vegetation type: Burned and Seeded.

Compass bearing: frequency baseline 155 degrees magnetic.

Frequency belt placement: Line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

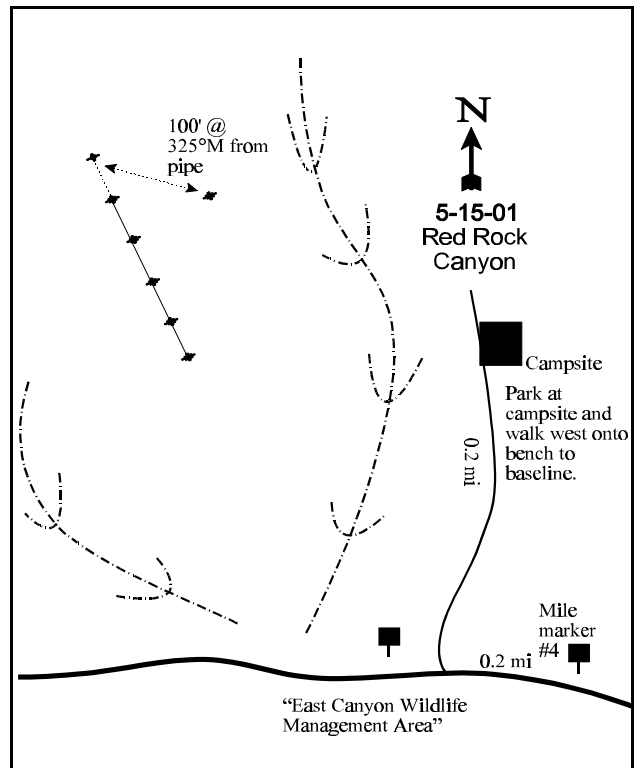
LOCATION DESCRIPTION

Travel east for 0.2 miles past mile marker # 4 on highway 66 heading towards Porterville and turn right (sign says East Canyon Wildlife Management Area). Travel north for 0.2 miles to a campsite. Park at the campsite and walk up on the bench due west to a pipe posted in the ground. From the pipe the 0-foot baseline stake is 100 feet at 325 degrees magnetic. The 0-foot baseline stake is marked by a browse tag # 52. The baseline runs 155 degrees magnetic.



Map Name: Porterville

Township 2N, Range 3E, Section 5



Diagrammatic Sketch

UTM 4531873 N 447100 E

DISCUSSION

Trend Study No. 5-15

The Red Rock Canyon trend study was established in 1996. It is located north of East Canyon Reservoir on a small bench that burned, then was seeded in 1992. The site was seeded with a combination of forbs and grasses which have established relatively well. Elevation of the site is approximately 5,620 feet with a south aspect and slight slope (3-5%). The area is considered winter range but it also receives use year round. Little big game use was noted in 1996, but a pellet group transect read on site in 2001, estimated 50 deer days use/acre (124 ddu/ha). Several deer pellet groups were recent and there were a few bedding areas encountered.

The soil is moderately deep with an effective rooting depth of over 13 inches. It has a clay loam to sandy clay loam texture with a neutral soil reaction (7.2 pH). There is very little rock in the soil profile or on the soil surface. Percent bare soil is also low with the majority of the bare soil caused by gopher activity. Vegetative and litter cover are high with no erosion apparent.

Shrubs are not abundant since the fire. The only common species include resprouting stickleaf low rabbitbrush and some broom snakeweed. Mountain big sagebrush has a stable density of only 220 plants/acre. Other browse species include white rubber rabbitbrush, stickleaf low rabbitbrush, and mountain snowberry.

The herbaceous understory is abundant and diverse. Seeded grasses established relatively well with crested wheatgrass occurring in over 50% of the quadrats. Other perennial grass species include Kentucky bluegrass, bluebunch wheatgrass, orchard grass, mountain rye, Sandberg bluegrass, thickspike wheatgrass, and Great Basin wildrye. Japanese brome dominated the herbaceous understory in 1996 by providing 57% of the grass cover. Cheatgrass was also present, but not as prominent. Dry conditions and competition with seeded perennials has caused Japanese brome to decline significantly in nested frequency. Sum of nested frequency for cheatgrass actually increased significantly but cover declined. Average cover of annual grasses has dropped from 24% in 1996 to only 5% in 2001. Average cover of perennial grasses more than doubled since 1996.

Forbs are also abundant and several useful species are found on the site. In 1996, yellow salsify was the dominant forb, followed by other increaser species such as prickly lettuce and thistle. Annual species included autumn willow weed, Douglas knotweed, tumble mustard, and pale alyssum. Seeded forbs, Lewis flax, small burnet, alfalfa, and yellow sweetclover, established well and accounted for 32% of the forb cover in 1996. Some utilization was noted on alfalfa and yellow salsify. In 2001, native and seeded perennial forbs have increased in cover and frequency. Yellow salsify, alfalfa, Lewis flax, and American vetch accounted for 71% of the forb cover.

1996 APPARENT TREND ASSESSMENT

There is no erosion apparent on the site at this time with abundant litter and vegetative cover. Most bare ground can be contributed by gopher activity. Browse species are sparse with stickleaf low rabbitbrush being the most abundant. The mountain big sagebrush density is not high, but the population is healthy and vigorous. Herbaceous understory is dominated by Japanese brome. There are several seeded species present which should provide forage and competition with annuals and increaser species.

2001 TREND ASSESSMENT

Trend for soil is stable with abundant protective ground cover and little exposed bare ground. Trend for the key browse species, mountain big sagebrush, is stable. There are only 220 plants/acre estimated but they are all vigorous. Density of the increasers, broom snakeweed and stickleaf low rabbitbrush have both declined. Trend for the herbaceous understory is up. Sum of nested frequency of perennial grasses has more than doubled, conversely nested frequency of annual grasses has declined. Cover of perennial grasses has risen from 13% in 1996 to 30% in 2001. The dominant grass in 1996, Japanese brome, has declined significantly in nested frequency and average cover has declined from 21% to only 3%. Seeded crested wheatgrass is now the dominant grass, accounting for 37% of the grass cover. On the negative side, cheatgrass did increase significantly in nested frequency and bulbous blue grass is now the second most abundant perennial grass. The forb component has improved. Sum of nested frequency of perennial forbs has increased moderately but average cover has nearly doubled. Seeded forbs have persisted and alfalfa now accounts for 25% of the total forb cover. Alfalfa is robust and only lightly utilized. Other abundant perennial forbs consist of yellow salsify and American vetch which combine to provided 43% of the total forb cover.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - up (5)

HERBACEOUS TRENDS --

Herd unit 05 , Study no: 15

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'96	'01	'96	'01	'96	'01
G	Agropyron cristatum	180	183	54	55	9.30	12.78
G	Agropyron dasystachyum	6	1	3	1	.06	.03
G	Agropyron intermedium	-	2	-	1	-	.03
G	Agropyron spicatum	27	34	10	16	.66	2.72
G	Bromus brizaeformis (a)	-	10	-	4	-	.22
G	Bromus carinatus	-	*22	-	10	-	1.25
G	Bromus japonicus (a)	394	*256	87	75	21.03	3.12
G	Bromus tectorum (a)	121	*138	33	50	3.38	1.42
G	Dactylis glomerata	18	*7	9	4	.16	.22
G	Elymus cinereus	2	7	1	2	.85	.81
G	Phleum pratense	-	3	-	1	-	.00
G	Poa bulbosa	-	*146	-	43	-	5.17
G	Poa pratensis	51	63	18	26	1.11	1.50
G	Poa secunda	9	*197	5	68	.05	5.60
G	Secale montanum	14	*-	6	-	.40	.00
Total for Annual Grasses		515	404	120	129	24.41	4.76
Total for Perennial Grasses		307	665	106	227	12.61	30.14
Total for Grasses		822	1069	226	356	37.02	34.91
F	Achillea millefolium	27	39	12	12	.23	.67
F	Agoseris glauca	17	32	9	13	.10	.45
F	Alyssum alyssoides (a)	11	*116	6	39	.03	1.15
F	Allium spp.	-	*89	-	39	-	.35
F	Aster spp.	-	3	-	1	-	.00
F	Camelina microcarpa (a)	-	*21	-	8	-	.21
F	Chaenactis douglasii	-	3	-	1	-	.00
F	Cirsium spp.	39	21	18	11	.66	.76
F	Collomia linearis (a)	13	18	6	7	.03	.06
F	Comandra pallida	19	13	7	6	.08	.10
F	Collinsia parviflora (a)	-	*69	-	26	-	.35
F	Descurainia pinnata (a)	-	5	-	2	-	.01
F	Draba spp. (a)	-	*19	-	7	-	.08
F	Epilobium brachycarpum (a)	122	*13	43	6	1.10	.10
F	Erodium cicutarium (a)	8	*77	4	24	.09	1.26
F	Erigeron pumilus	1	-	1	-	.00	-
F	Galium aparine (a)	1	5	1	2	.00	.03
F	Gilia spp. (a)	-	3	-	1	-	.00

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'96	'01	'96	'01	'96	'01
F	Grindelia squarrosa	2	-	2	-	.03	-
F	Helianthus spp.	3	-	2	-	.03	-
F	Holosteum umbellatum (a)	-	*37	-	12	-	.13
F	Lappula occidentalis (a)	-	*32	-	8	-	.14
F	Lactuca serriola	154	*6	61	3	1.77	.18
F	Linum lewisii	99	98	39	39	1.39	.71
F	Machaeranthera canescens	4	-	1	-	.18	-
F	Madia glomerata (a)	1	1	1	1	.00	.00
F	Melilotus officinalis	11	7	6	3	.48	.09
F	Medicago sativa	48	60	20	26	1.71	6.19
F	Microsteris gracilis (a)	-	1	-	1	-	.00
F	Onobrychis viciaefolia	-	-	-	-	-	.03
F	Phlox longifolia	2	9	1	3	.00	.01
F	Polygonum douglasii (a)	50	*3	23	2	.19	.01
F	Sanguisorba minor	32	*16	19	9	.60	.17
F	Sisymbrium altissimum (a)	16	*35	7	13	.25	.61
F	Taraxacum officinale	-	*9	-	5	-	.19
F	Tragopogon dubius	190	191	72	67	3.86	8.22
F	Vicia americana	11	*124	9	44	.07	2.45
Total for Annual Forbs		222	455	91	159	1.71	4.18
Total for Perennial Forbs		659	720	279	282	11.24	20.64
Total for Forbs		881	1175	370	441	12.95	24.83

* Indicates significant difference at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 05 , Study no: 15

Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Artemisia tridentata vaseyana	10	9	.10	.15
B	Chrysothamnus nauseosus albicaulis	1	3	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	51	44	7.43	4.78
B	Gutierrezia sarothrae	22	11	1.45	.65
B	Purshia tridentata	0	0	.00	-
B	Symphoricarpos oreophilus	3	4	.38	.15
Total for Browse		87	71	9.37	5.74

BASIC COVER --

Herd unit 05 , Study no: 15

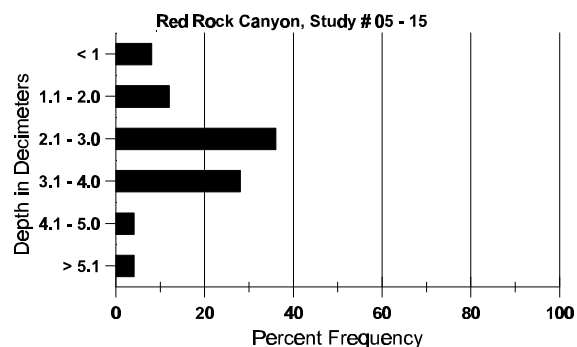
Cover Type	Nested Frequency		Average Cover %	
	'96	'01	'96	'01
Vegetation	493	469	63.68	64.11
Rock	39	43	.35	.51
Pavement	53	121	.20	2.60
Litter	500	484	79.98	49.67
Cryptogams	8	18	.04	.08
Bare Ground	129	175	3.74	4.70

SOIL ANALYSIS DATA --

Herd Unit 05, Study no: 15, Red Rock Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
13.5	66.2 (16.4)	7.2	44.6	25.4	30.0	3.3	41.4	291.2	.6

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 05 , Study no: 15

Type	Quadrat Frequency		Pellet Transect	
	'96	'01	Pellet Groups per Acre '01	Days Use per Acre (ha) '01
Elk	1	-	-	-
Deer	5	11	653	50 (124)

BROWSE CHARACTERISTICS --

Herd unit 05 , Study no: 15

Artemisia tridentata vaseyana																			
A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4					
S	96	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
Y	96	11	-	-	-	-	-	-	-	-	11	-	-	-	220			11	
	01	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7	
M	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	17	9	0	
	01	4	-	-	-	-	-	-	-	-	3	1	-	-	80	18	25	4	
X	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'96		00%			00%			00%			+ 0%								
'01		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)														'96	220	Dec:	-		
														'01	220		-		
Chrysothamnus nauseosus albicaulis																			
Y	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3	
M	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	25	25	1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	9	31	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'96		00%			00%			00%			+67%								
'01		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)														'96	20	Dec:	-		
														'01	60		-		
Chrysothamnus viscidiflorus viscidiflorus																			
Y	96	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1	
M	96	101	-	-	-	-	-	-	-	-	101	-	-	-	2020	17	28	101	
	01	58	-	-	1	-	-	-	-	-	59	-	-	-	1180	15	25	59	
D	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1	
	01	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8	
X	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'96		00%			00%			00%			-38%								
'01		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)														'96	2200	Dec:	1%		
														'01	1360		12%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
Y	96 01	27 -	- -	- -	1 -	- -	- -	- -	- -	- -	28 -	- -	- -	- -	560 0		28 0	
M	96 01	51 27	- -	- -	- -	- -	- -	- -	- -	- -	51 27	- -	- -	- -	1020 540	11 8	10 10	51 27
D	96 01	- 2	- -	- -	- -	- -	- -	- -	- -	- -	- 2	- -	- -	- -	0 40		0 2	
X	96 01	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	0 20		0 1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		00%			00%			00%			-63%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'96	1580	Dec:	0%			
												'01	580		7%			
Symphoricarpos oreophilus																		
Y	96 01	2 1	- 1	- -	- -	- -	- -	- -	- -	- -	2 2	- -	- -	- -	40 40		2 2	
M	96 01	2 1	- -	- -	- 1	- -	- -	- -	- -	- -	2 2	- -	- -	- -	40 40	23 13	32 21	2 2
X	96 01	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	20 0		1 0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		00%			00%			00%			+ 0%							
'01		25%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'96	80	Dec:	-			
												'01	80		-			